5-1-1936

M.W.A.K. Columbian, Vol. 2, No. 18

Mason-Walsh-Atkinson-Kier Co.

M. W. A. K. COLUMBIAN

SAFETY DEPARTMENT | MASON-WALSH-ATKINSON-KIER CO. BUILDERS OF COULEE DAM | MASON CITY WASHINGTON

Vol. 2 No. 18 | M. Pete Shrauger--Editor Safety Engineer

300 YEARS COULD BE CUT TO MONTHS

THIS CHANGE IN COOLING COULEE DAM IS POSSIBLE THROUGH USE OF 1500 MILES OF COOLING PIPE

In the concrete of the largest dam in the world there cannot be numerous thin lines widening into cracks with water oozing through. Many concrete dams show those traces. And yet that condition could not be avoided if it were not for the 935 miles of pipe to run horizontally vertically, longitudinally--in all directions, to loop back through the concrete for the present contract------nearly 1900 miles for the completed dam.

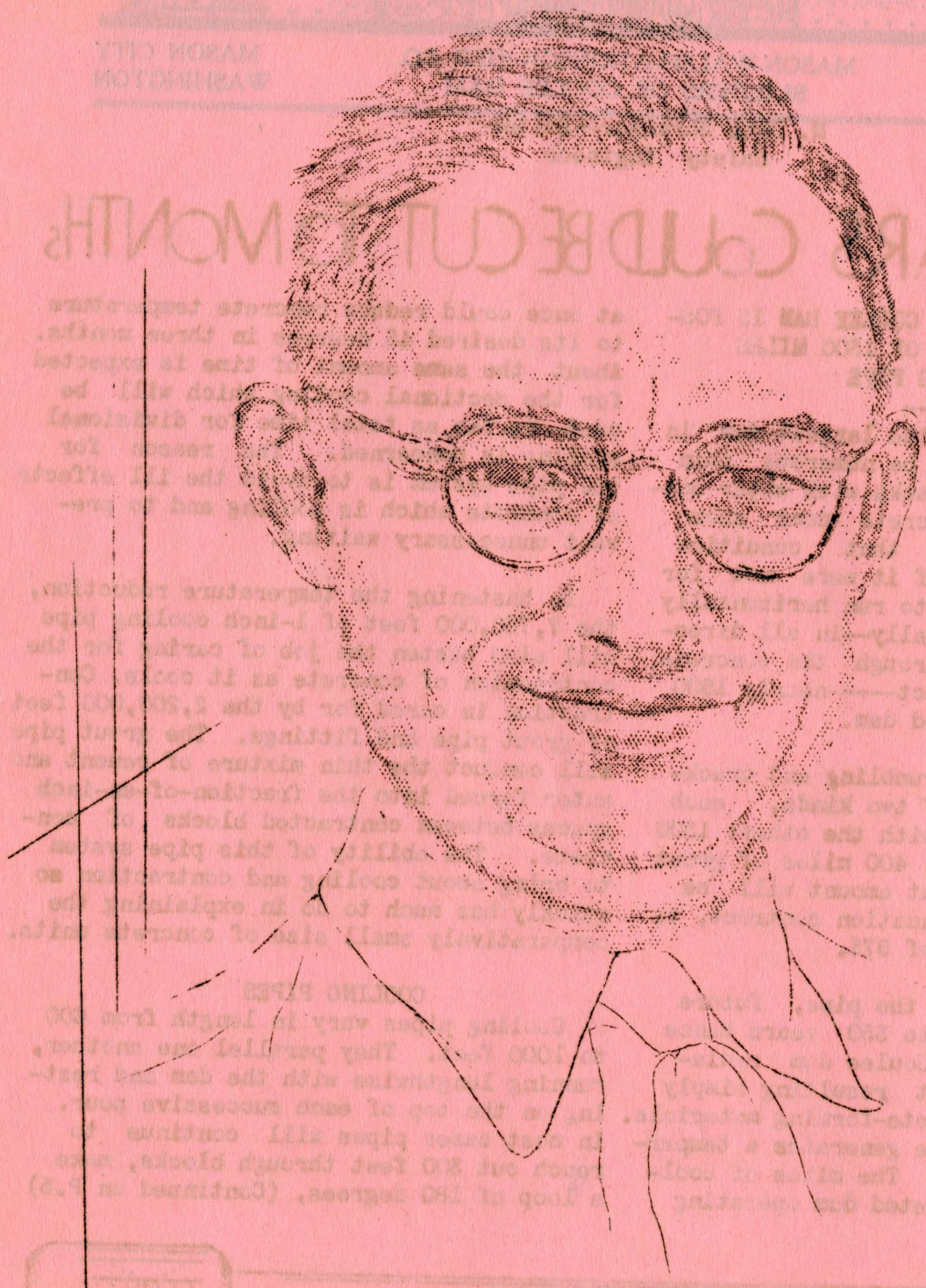
Pipes to prevent crumbling and cracking or concrete are of two kinds, each working hand in hand with the other: 1500 miles of cooling pipe, 400 miles of grout pipe. About half that amount will be necessary for the foundation contract, to an average elevation of 975.

If it were not for the pipe, future generations from 300 to 350 years hence could find the Grand Coulee dam radiating a noticeable heat resulting simply from the mix of concrete-forming materials. The making of concrete generates a temperature of 130 degrees. The miles of cooling pipe in the completed dam operating at once could reduce concrete temperature to its desired 45 degrees in three months. About the same amount of time is expected for the sectional cooling which will be used--as far as total time for divisional cooling is concerned. The reason for the pipe system is to avoid the ill effects of concrete which is cooling and to prevent unnecessary waiting.

In hastening the temperature reduction, the 7,750,000 feet of 1-inch cooling pipe will also hasten the job of caring for the contraction of concrete as it cools. Contraction is cared for by the 2,200,000 feet of grout pipe and fittings. The grout pipe will conduct the thin mixture of cement and water forced into the fraction-of-an-inch spaces between contracted blocks of concrete. The ability of this pipe system to bring about cooling and contraction so quickly has much to do in explaining the comparatively small size of concrete units.

COOLING PIPES

Cooling pipes vary in length from 600 to 1000 feet. They parallel one another, running lengthwise with the dam and resting on the top of each successive pour. In most cases pipes will continue to reach out 300 feet through blocks, make a loop of 180 degrees, (Continued on P.5)



LINDMAN

DONALD O. NELSON

Donald O. Nelson, structural engineer for the Mason-Walsh-Atkinson-Kier company, attended his first school in Minneapolis, his city of birth. When he was in the sixth grade his family moved West, to Portland, Oregon, where he graduated from high school. He returned to Minnesota to receive his first degree in engineering from the state university in 1920.

On receipt of the degree he was employed by the Portland Electric Power company in the drafting department, and in 1922 became affiliated with the Truscon Steel company in Portland. Here Don Nelson remained for nine years, except for one year when he returned on a fellowship to his alma mater for a master's degree in 1926. On his return to the Truscon company he became Northwest district engineer.

In 1931 he established his own office for miscellaneous engineering construction and design, but during the summer of 1933 went to Longview to design an addition for a large paper mill. He then entered the employ of the Guy F. Atkinson company in Portland, and in the spring of 1934 was interested in structural design for estimating purposes for the company at Bonneville.

Two days before the opening of MWAK offices in Spokane in the Peyton building, Don Nelson was concerned with details of Grand Coulee work. There, before offices were established on the Columbia river, he concentrated on west cofferdam and bridge designs. In addition to innumerable items that confront engineers since those days, Don Nelson has been contact man with the bureau of reclamation and has been interested in engineering details for the construction trestles, gravel plant, Mason City sewage and water systems, the catwalk, and the excavation bridge now dismantled.

Daughter: "Do you believe in love at first sight, Mother?"

Mother: "Of course I do! Do you think I would have married your father if I had taken a second look at him?"

-oOo-

IT'S DIFFICULT TO BELIEVE THAT ONE About the Scotchman who went into the barber shop and said:

"How much do you charge to shave a corpse?"

"One dollar."

The Scotchman sat down in the chair, had his shave and shot himself.

-oOo-

WHAT HAS BECOME OF THE OLD-FASHIONED GIRLS WHO SHYLY TALKED ABOUT THE NUMBER OF CHILDREN, INSTEAD OF THE HUSBANDS, THEY EXPECTED TO HAVE?

-oOo-

They stood by the garden gate bathed in April moonlight.

"Belle," he whispered huskily, "we've been walking out together six years, you and I."

"That we have, Will," was the subdued reply.

"And," the man continued, "we've kind o' got to know each other, to trust each other, ain't we?"

"Course we have, Will," came the thrilled response.

"Well," he gulped, "will you--will you lend me my bus fare home----I'm broke."

-oOo-

AN ANALYSIS MADE BY THE FERA SHOWED THAT EVERY FIFTH PERSON ON RELIEF ROLLS IN THE WAGE EARNING GROOP IS UNEMPLOYED BECAUSE OF DISABILITY. A NICE SITUATION FOR YOU SOME TIME.

-oOo-

"We're expecting a blessed event at our house soon."

"No foolin'? Congratulations, old man!"

"Yep! Next month we make the last payment on the car."

EUROPE IS GOING TO SOLVE THE UNEMPLOYMENT SITUATION SOONER THAN ANYBODY ELSE. SHE'LL PUT ALL THE MEN TO WORK FIGHTING ONE ANOTHER.

-oOo-

"A farmer near us went to his stable and, by mistake, mixed up a nice mash in a box of sawdust instead of bran, and fed it to his cow," writes L. C. "Evidently thinking that hard times had really come, and wishing to co-operate with her master, the cow meekly ate her supper; and the farmer didn't discover his mistake until the next morning when he milked the cow--and she gave a half-gallon of turpentine and a quart of shoe pegs."

-oOo-

"Is this the Fidelity Insurance company?

"Yes ma'am. What can we do for you?"

"I want to arrange to have my husband's fidelity insured.

-oOo-

SAFETY PAYS--IF YOU'RE CAREFUL--
YOU PAY, IF YOU'RE NOT!

-oOo-

The one-ring circus was in town, and the band was playing. The country folks recognized all the instruments except the slide trombone.

An old settler watched the player for a time and then, turning to his son, he said:

"Don't let on that you notice him, fer there's a trick in't. He ain't really swallerin' it."

-oOo-

A CATERPILLAR IS AN UPHOLSTERED WORM.

-oOo-

"If I should steal a kiss, would it be petit larceny?"

"No, I think it would be grand."

-oOo-

"Who is on the phone?"

"It seems to be some woman. All I can hear her say is 'idiot'."

"I'll answer it; it must be my wife."

300 YEARS TO MONTHS

(Continued from Page 1)

and return. This explains the 600 feet. Longer coils are exceptions and are needed when pipe must be shaped to fit odd-shaped formations, as long abutment curves or required elevation changes. Each 5-foot lift for a 50-foot block contains about 450 feet of pipe in nine parallel lines.

Like a city water supply system, the lines that go out have central or collecting stations. These are in galleries or tunnels throughout the dam. In each block is a 42-inch vertical shaft. The shaft is a collecting point for pipes nearest it. Also there are transverse (north-south) horizontal galleries. Such galleries are at 50-foot elevations and are 600 feet apart for each elevation. Lengthwise of the dam will also be galleries, also at 50-foot elevations. By the use of headers, the lines of pipe in each of the blocks will center in the 50-foot elevations for sectional cooling.

Before very long cooling pipes will be carrying water through concrete for the low area already poured, from blocks 22 to 31. Already bids are out for two steel barges; however, these would not be used for the initial small amount of cooling for the early concrete.

The use of cooling pipes encased in concrete is only a recent development. The single big previous use is at Boulder dam. But at Boulder an ammonia refrigeration plant found use before circulation of water through the dam; here at the Grand Coulee the river will provide direct pumping from a fleet of pumps. The reason for not using an ammonia plant here is that water temperature of the Columbia river is about 20 degrees colder than that of the Colorado.

This explains another difference, which lies in the "preliminary cooling" of the dam here. The temperature of concrete is to be lowered to 45 degrees, but only during winter months is river temperature as low as 45 degrees. However, water will be used in other months, and will be lowered in a second step in the winter time to its 45 degrees.

An incidental yet important connection with the pipe system lies in the statement that pipes crossing from one block to another are never in an unbroken piece. Allowances are made for expansion and contraction. For that purpose at every crossing (or expansion) joint expansion type couplings are used. It is estimated that 575,000 couplings will be necessary, more than one million for the completed dam.

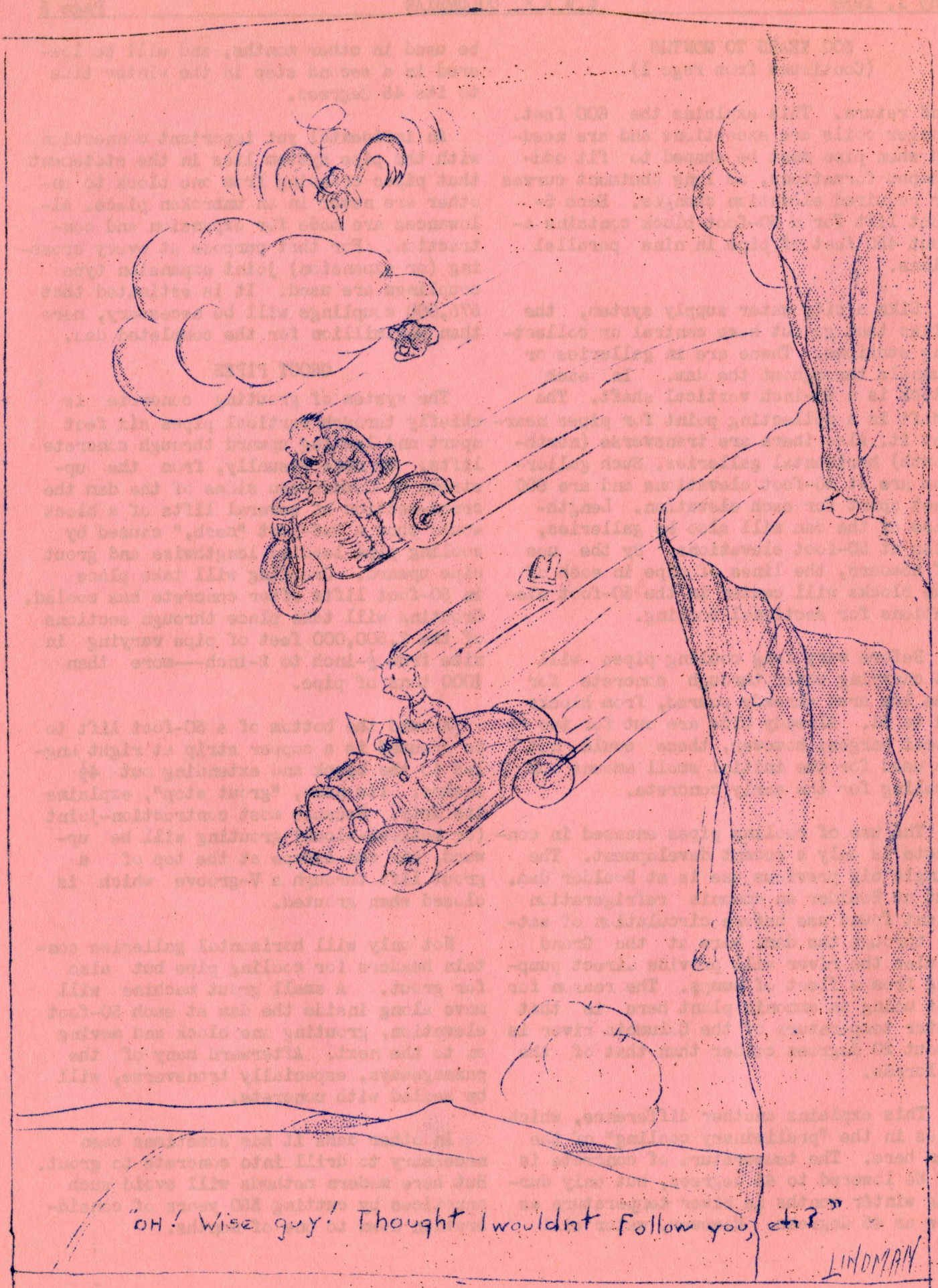
GROUT PIPES

The system of grouting concrete is chiefly through vertical pipes six feet apart and leading upward through concrete lifts. Or more visually, from the upstream or downstream sides of the dam the cross-section of several lifts of a block would show a 5x6-foot "mesh," caused by cooling pipe leading lengthwise and grout pipe upward. Grouting will take place in 50-foot lifts after concrete has cooled. Grouting will take place through sections of the 2,500,000 feet of pipe varying in size from ½-inch to 2-inch---more than 1000 tons of pipe.

Around the bottom of a 50-foot lift to be grouted is a copper strip at right angles to the block and extending out 4½ inches. Its name, "grout stop", explains its duty. Because most contraction-joint (or between-block) grouting will be upward, air can escape at the top of a grout lift through a V-groove which is closed when grouted.

Not only will horizontal galleries contain headers for cooling pipe but also for grout. A small grout machine will move along inside the dam at each 50-foot elevation, grouting one block and moving on to the next. Afterward many of the passageways, especially transverse, will be sealed with concrete.

In other dams it has sometimes been necessary to drill into concrete to grout. But here modern methods will avoid such practices by cutting 350 years of consideration down to one of months.


"OH! Wise guy! Thought I wouldnt Follow you, eh?"
LINDMAN

A NARROW ESCAPE

An example that strikes home especially well in the consideration of the value of both safety and first-aid occurred last Monday when two engineers for the reclamation service came into indirect contact with an 11,000-volt electric line. Circumstances attending the accident deserve consideration.

One engineer was knocked over a cliff by the shock, with his head striking a rock and unconsciousness resulting. A fellow engineer, formerly with the MWAK, last summer completed his first-aid course. He revived the injured chainman with artificial respiration. Without that knowledge the accident might have been fatal. A second workman, less severely shocked, recovered without help.

Rainy weather had a part in conducting electricity down the field rod. The danger involved is made more evident by realizing that fatalities have resulted from NO MORE THAN 110 VOLTS!

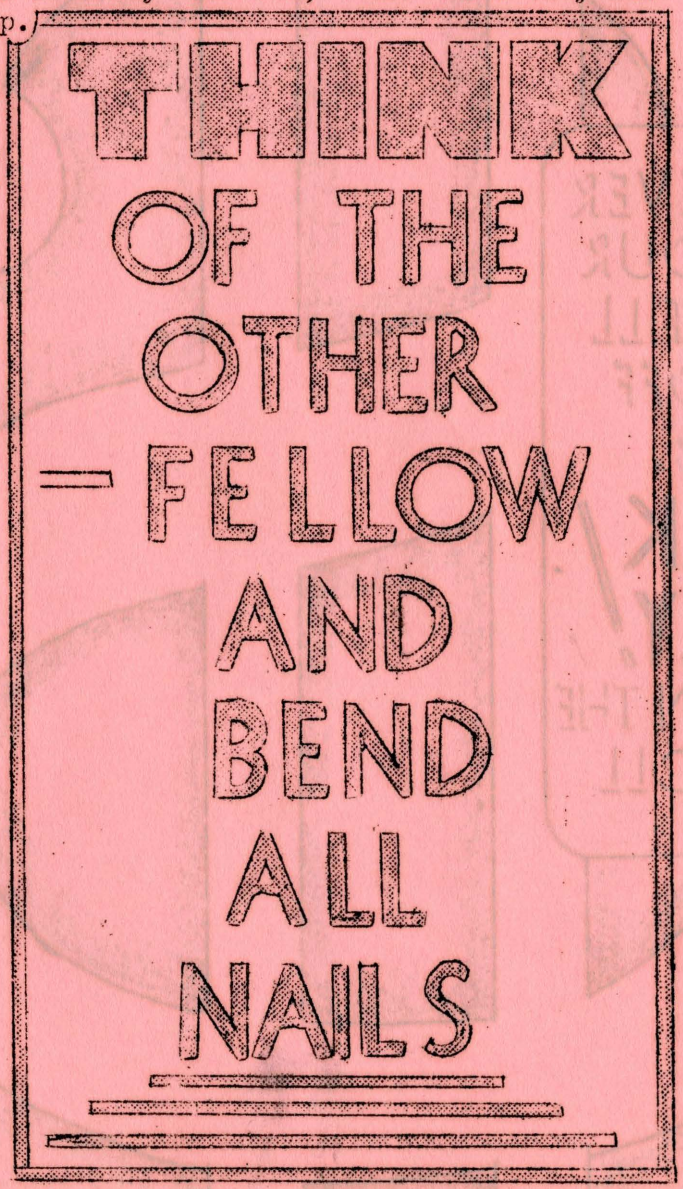
DANGER IS ESPECIALLY GREAT IN DAMP OR WET WEATHER BUT REGARDLESS OF CONDITIONS, YOU CAN NEVER TAKE CHANCES WITH ELECTRICITY.

YOU HAVE NO WAY OF KNOWING WHEN A KNOWLEDGE OF WHAT TO DO MAY SAVE A LIFE.

HOW TO CARE FOR ACCIDENTS AND HOW TO PREVENT THEM ARE TWO POINTS THAT WILL SAVE LIVES ANYWHERE!

*****

Dinky locomotives have returned to the west cofferdam, but only to bring concrete for crib work.



SECOND WING OPENS

The influx of a record-breaking group of visitors Sunday marked the daily opening of the north wing of the mess hall. Evening meals are held in both wings, with 30 tables in use on the north side.

Last Sunday 880 visitors dined at midday, 788 cash meals, 92 checked against brass. This total is 130 more than the Sunday before.

To insure timely return to work of employees, workmen were admitted first to eat.

-oOo-

PREPARE FOR SUMMER CONCERTS

Under the direction of R. L. Wheeler the Mason City band is holding weekly rehearsals every Wednesday night at 8 in the Fire Station. Persons interested in playing band instruments can apply at the Station.

Summer concerts are to be given in Meade Circle on the stand assembled by band members.

*****

The fish can see the answer, but where are the rock piles that were resting against the river side of the west cofferdam?

*****

The first test of the cement line across the river was held last Friday.

*****

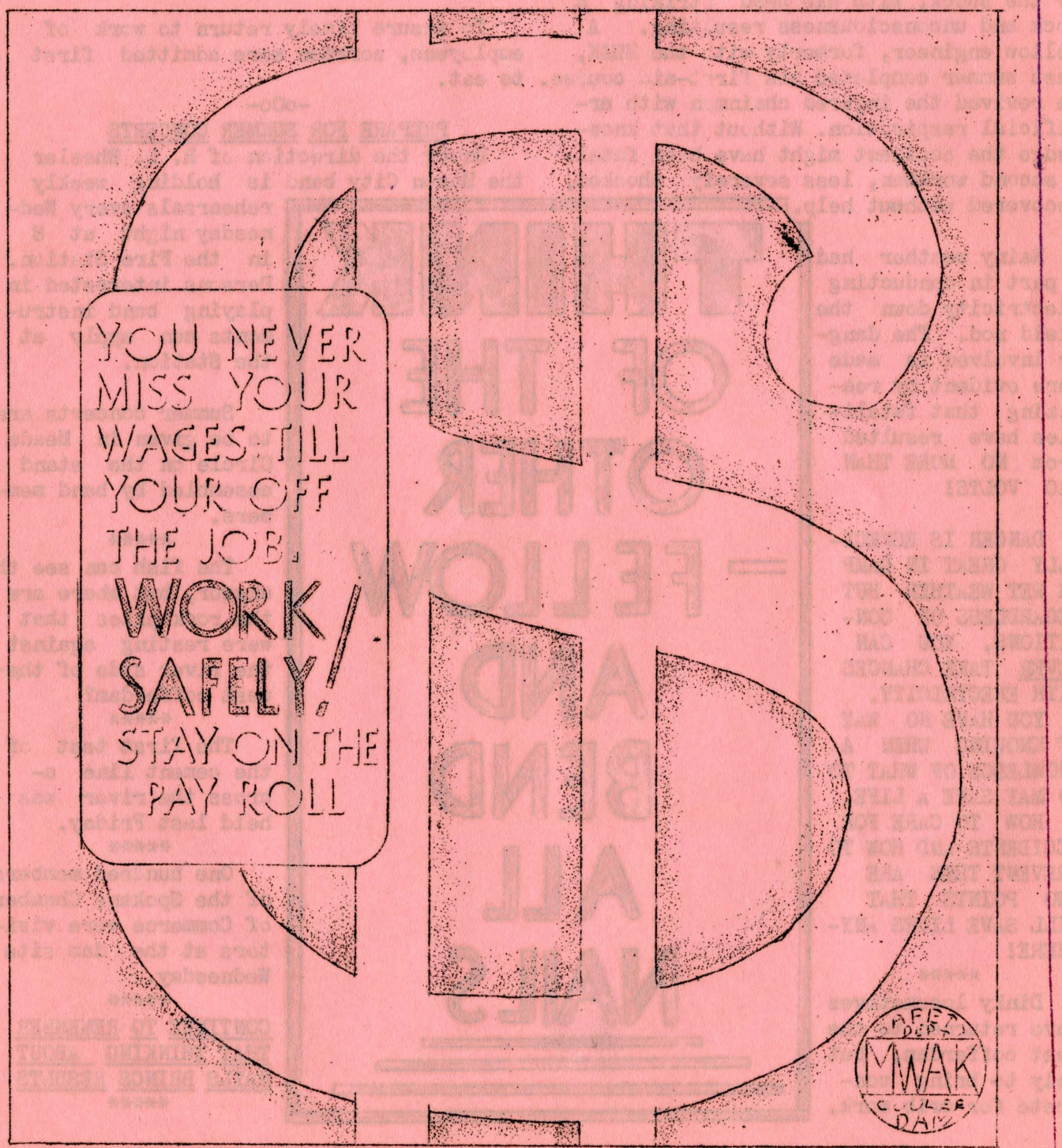
One hundred members of the Spokane Chamber of Commerce were visitors at the dam site Wednesday.

*****

CONTINUE TO REMEMBER THAT THINKING ABOUT NAILS BRINGS RESULTS

*****

SAFETY ALWAYS
ALL WAYS



—CHURCH—

COMMUNITY CHURCH-The Rev.W.W.Sloan,pastor
Services for Sunday, May 3::
9:45 a.m. Sunday School.
11:00 a.m. Morning Worship; subject, "Experiencing Christianity."
Schedule for young people's societies:
11:00 a.m. Junior society in church parlor
6:00 p.m. Junior high society in church parlor.
8:00 p.m. Senior society, church proper.

The eighth weekly meeting on "Methods of Teaching Religion" will be held Tuesday night at 8.

-oOo-

CATHOLIC CHURCH-Father A. Farrelly,pastor
Sunday mass will be said in the school building at Grand Coulee at 9:00 a.m. and in St. Benedict's church, Mason City, at 11 a.m. Instructions for children will be given Saturday, and confessions will be heard Saturday evening and Sunday morning.

-oO

ANNOUNCEMENT--
THE CHURCH OF JESUS CHRIST OF LATTER DAY SAINTS hereafter will conduct Sunday School at 10:30 instead of 10:00 a.m. as previously. This is to benefit men working night shifts. Services will be held in the Mason City high school building in place of the recreation hall.

-oO

YOUR FINGERS ARE VALUABLE-KEEP THEM

-oO

Screen doors have begun their appearance at bunkhouses.

—SPORTS—

The baseball fever has spread over the area with increased activity and the formation of additional teams.

The Mason City Beavers clash in their second engagement of the Idaho-Washington league with Rosalia here in Walsh Stadium Sunday at 1:30. Who will take the mound against the Rosalians is not definitely known at the present time. Rosalia is a past winner of the league pennant.

USBR representatives will gather tonight in their South Dormitory to form a team to meet other nines of the area. They express an interest in the formation of a league at the dam site.

Members of the MWAK field area have already made plans to put a team in the field to swing bats against other towns.

The Mason City Fire and Police Department ball team stopped Osborne 10 to 3 in Walsh Stadium Wednesday, with eight Osbornites swinging out in the five innings. G. Riste accounted for five, Lee Hyde for three.

Last Sunday five errors and some faulty base running contributed to the defeat of the Beavers by the Spokane Bohemian Brewers 10 to 3. A deluge of six runs came in the eighth after a nip-and-tuck battle.

Oo-

Two shovels are eating a way for a road on the high east keyway to be used for rock excavation. The blasting of rock will soon return here.

Oo-

Mason City Theatre

SMASH HIT OF 1936!

MUSIC GOES ROUND

FRI & SAT

SUN MON TUES

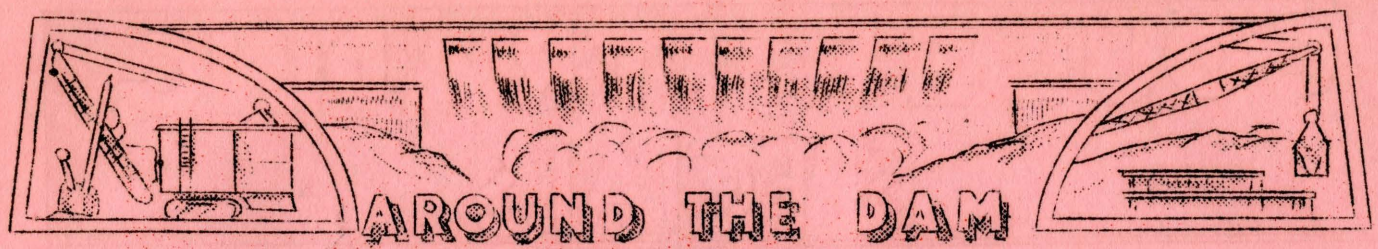
ANNE SOTHERN
BRUCE CABOT

RALPH BELLAMY

NAVY WIFE

DONT GAMBLE WITH LOVE

WED. & THUR.



MAIN CONVEYOR RESTS

Wednesday night a dragline cast its last load of dirt into the one lateral in the west pit and the long conveyor that broke numerous excavation records is due for a long rest. More than a mile away from the source the conveyor had just completed dumping 400,000 yards resting behind block 40. Removal of the feeder and the conveyor lateral began immediately.

As huge as the dam will be, the main conveyor has moved nearly 50 per cent more material than the amount of concrete to be contained in the completed dam. Fourteen million hards have been transported by the conveyor. The main system will be used again when dirt is excavated from the river bed.

-oOo-

WATERS

Water that rushed down the flume into the east pit at 1 p.m. Monday halted at 3:30 a.m. Wednesday. According to river conditions here and up river, it may be unnecessary to open the gates to much more water for some time to come. Water had been admitted through but one 36-inch pipe in the cofferdam and had reached a maximum depth in the pit of more than 130 feet. The water level was 80 feet below the top of the cofferdam, 74 below river level. From Tuesday to Wednesday the river had risen but .3 foot. Water was halted into the east pit to allow riveting of construction trestle bents and to check water action on the slide.

-oOo-

NEVER DISTRACT THE ATTENTION OF A MAN WORKING WHERE DANGER THREATENS

-oOo-

The first mix of concrete to be used from the eastmix came out Sunday. The concrete went for the 6-inch layer covering the filler in the east cofferdam. This will protect any possible washing-out of the sand and gravel inside.

-oOo-

SAFETY SUGGESTIONS - WELCOME

NEW CRANE SHAPES UP

Gantry erection for the second hammerhead for the west side downstream trestle began Monday on the power house abutment block. The six sections of the 250-foot boom in the east shop area will be assembled with the rest of the crane on the trestle. A stiff-leg is moving the steel. First consideration in the use of the crane was to place it on the east upstream trestle.

-oOo-

RE-SLOPE SLIDE

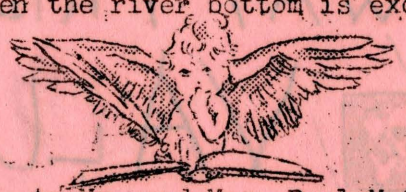
Engineers have laid out new slopes to take care of the east slide area. Re-sloping will be 4 to 1 to elevation 970 and continue 2 to 1. This will require the excavation of about 600,000 yards. A shovel cutting in at the top of the area is dumping to trucks to remove as much needed excavation from the top as possible.

-oOo-

An oil house for diesel dinkeys has been erected east of the dinkey shop.

-oOo-

The whole east area looks peculiarly barren with the excavation bridge and 1000 feet of trestle and conveyor leading to it gone. Dismantling began last Friday in the face of the threat of the river. Work had been rushed to complete the carrying of 40,000 yards between the cofferdam and block 40. Dismantling began on completion of the job. Only the piling remains now. If the river does not carry away the piling it may be used again when the river bottom is excavated.



April 24, to Mr. and Mrs. Paul McCracken of Grand Coulee, a daughter.

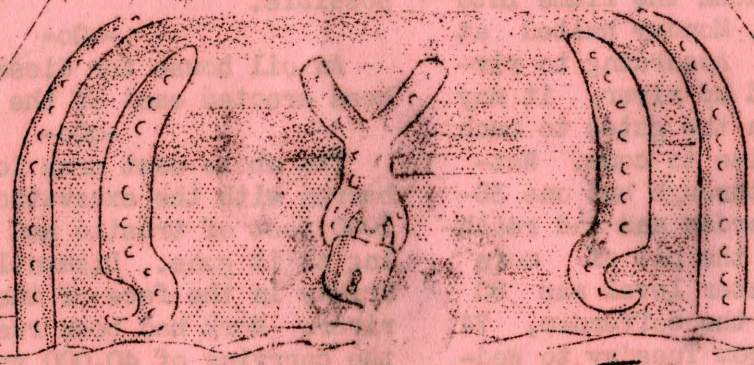
-oOo-

CEMENT BURNS ARE DANGEROUS--
REPORT ALL CASES
TO THE HOSPITAL

COULEE TRADING SPECIALS

FREE

TREASURE HUNT



OVER 13,000 ARTICLES GIVEN AWAY FRIDAY & SATURDAY

VALUE $5.00